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PATENT  
Docket No. 55837US002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant(s):	Deral T. MOSBEY et al.	)	Group Art Unit:	1617
		)		
Serial No.:	09/966,511	)	Examiner:	Lauren Q. Wells
Confirmation No.:	4740	)		
		)		
Filed:	28 September 2001	)		
		)		
For:	WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS			

**APPELLANTS' BRIEF ON APPEAL**

Commissioner for Patents  
**Mail Stop Appeal Brief - Patents**  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This Brief is presented in support of the Appeal filed 14 June 2004, from the final rejection of claims 1-52 and 66-70 of the above-identified application under 37 C.F.R. §§1.113 and 1.191.

This Brief is being submitted in triplicate, as set forth in 37 C.F.R. § 1.192(a). Please charge Deposit Account No. 13-4895 the fee for filing this Brief under 37 C.F.R. § 1.17(c).

**I. REAL PARTY IN INTEREST**

The real party in interest of the above-identified patent application is the assignee, 3M Innovative Properties Company.

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## **II. RELATED APPEALS AND INTERFERENCES**

There are no appeals or interferences known to Appellants' Representatives which would directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

## **III. STATUS OF CLAIMS**

Claims 1-52 and 66-70 are pending and are the subject of this Appeal (see Appendix I).

## **IV. STATUS OF AMENDMENTS**

The amendments, filed on 11 May 2004, in response to the Final Office Action, mailed on 11 February 2004, were not entered. Appellants emphasize that the amendments submitted in the Response to the Final Office Action (mailed on 11 February 2004) were previously submitted in a Response to a Non-final Office Action (mailed on 14 October 2003) and were entered. Therefore, the amendments submitted in the Response to the Final Office Action (mailed on 11 February 2004) were the result of a typographical error. In summary, there are no outstanding amendments that have not been entered.

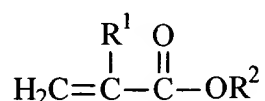
## **V. SUMMARY OF THE INVENTION**

Claims 1-27 of Appellants' invention relate to a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkyl-Y-containing side chains, wherein Y is O or NR, wherein R is H or CH<sub>3</sub>, and wherein the alkyl group of the alkyl-Y-containing side chain has at least 4 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water

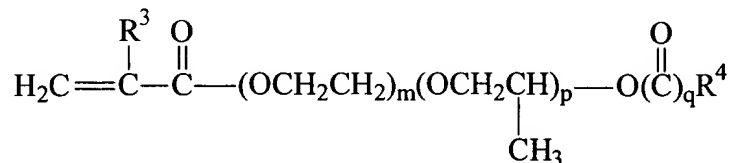
phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase (page 2, line 32 to page 3, line 12 and page 7, lines 20-22 of Appellants' specification).

Claim 28 of Appellants' invention also relate to a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkoxy-containing side chains, wherein the alkyl group of the alkoxy-containing side chain has 4 to 50 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase (page 2, line 32 to page 3, line 16 and page 7, lines 20-22 of Appellants' specification).

Claims 29-31 of the invention also relate to a water-in-oil emulsion comprising: an oil phase; a water phase; and a vinyl polymer that is insoluble or sparingly soluble in the water phase; wherein the vinyl polymer comprises the reaction product of monomers comprising: about 60 wt-% to about 90 wt-% of at least one monoethylenically unsaturated alkyl (meth)acrylate monomer having the formula:



wherein: R<sup>1</sup> is H or CH<sub>3</sub>; and R<sup>2</sup> is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms; and about 10 wt-% to about 40 wt-% of at least one monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomer having the formula:



wherein: m is at least 2; p is 0 to 50; q is 0 or 1; R<sup>3</sup> is H or CH<sub>3</sub>; and R<sup>4</sup> is hydrogen or linear or

branched alkyl and/or aryl groups; with the proviso that the isopropylene oxide groups (the "p" groups) and the ethylene oxide groups (the "m" groups) are arranged in a reversed, alternating, random, or block configuration; with the proviso that the vinyl polymer includes no more than about 0.1 wt-% copolymerized acidic monomers (page 2, line 32 to page 4, line 4 and page 7, lines 20-22 of Appellants' specification).

Claim 66 of Appellants' invention relates to a water-in-oil emulsion comprising: a vinyl polymer comprising the reaction product of monomers comprising isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate; an oil phase; and a water phase (page 2, line 32 to page 4, line 21; page 9, lines 9 and 16; page 10, line 29 to page 11, line 1; and page 7, lines 20-22 of Appellants' specification).

Claims 32-52 and 67-70 relate to compositions comprising the water-in-oil emulsions that are also provided by the invention (page 2, line 32 to page 4, line 28 and page 7, lines 20-22 of Appellants' specification).

## **VI. ISSUE(S) PRESENTED FOR REVIEW**

1. Whether claims 1-45, 48-52, and 66-70 are patentable under 35 U.S.C. § 103(a) over Michaels (U.S. Patent No. 5,389,676) in view of Kernstock et al. (U.S. Patent No. 4,552,685).

2. Whether claims 46-47 are patentable under 35 U.S.C. § 103(a) over Michaels (U.S. Patent No. 5,389,676) in view of Kernstock et al. (U.S. Patent No. 4,552,685) as applied to claims 1-45, 48-52, and 66-70 above, and further in view of Omura et al. (U.S. Patent Publication No. US 2003/0064046 A1).

## **VII. GROUPING OF CLAIMS**

For the purpose of this appeal, claims 1-52 and 66-70 stand or fall together.

As applicable, separate arguments of patentability are provided to support the grouping of the claims as presented above.

## **VIII. ARGUMENT**

### **A. Claims 1-45, 48-52, and 66-70 are patentable over Michaels (U.S. Patent No. 5,389,676) (Michaels herein) in view of Kernstock et al. (U.S. Patent No. 4,552,685) (Kernstock herein) under 35 U.S.C. § 103(a).**

Claims 1-45, 48-52, and 66-70 stand rejected under 35 U.S.C. § 103(a) over Michaels (U.S. Patent No. 5,389,676) in view of Kernstock et al. (U.S. Patent No. 4,552,685). Appellants respectfully disagree and request review and reversal of this rejection by the Board.

The Examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. In re Fine, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). To establish a *prima facie* case of obviousness, three criteria must be met. First, the prior art reference (or references) must teach or suggest all of the claim limitations. Second, there must be some suggestion or motivation, either in the cited reference (or references), or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Third, there must be a reasonable expectation of success. M.P.E.P. § 2142 (citations omitted).

Michaels discloses that it has been found that "compositions comprising the surfactant formulations of this disclosure (as hereinbefore defined); substantially non-polar hydrophobic materials typically having a HLB value of 1 or less and water soluble, nonionic, cationic or amphoteric, emulsion aids that increase viscosity and do not deactivate the anti-infective activity of the surfactant formulations of this disclosure, form stable emulsions having anti-infective activity" (column 2, lines 46-54). "An emulsion is considered to be stable when the emulsion, either oil-in-water or water-in-oil, does not separate into separate phases under

normal conditions of storage and use" (column 2, lines 56-59). Michaels also teaches that the "operating pH of the composition is 4.0 to 7.0, preferably, from about 4.5 to 6.5" (column 5, lines 23-25). As stated by the Examiner, Michaels does not teach or suggest vinyl polymers (page 4 of Final Office Action mailed 11 February 2004).

Kernstock discloses that "aqueous compositions containing a water-soluble amphoteric surfactant are effectively thickened without substantial loss in clarity by a suitable pH responsive, synthetic addition copolymeric thickener" (Abstract). Kernstock teaches that by "the term 'soluble' it is meant that the surfactant forms a true solution with the aqueous liquid, i.e., individual molecules of the surfactant are uniformly dispersed in the water" (column 3, lines 22-25) (emphasis added). Kernstock also defines the term "pH responsive."

By the term "pH responsive" is meant that the properties and characteristics of the copolymeric thickeners vary with pH wherein the copolymer is described as generally insoluble in an aqueous liquid having a pH of less than about 2 but dissolves or swells in a neutral or alkaline aqueous liquid. The ability of the copolymer to thicken is primarily due to this conversion of a copolymer which is insoluble (hydrophobic) in an aqueous liquid at one pH, thereby causing no or little viscosity increase in the aqueous liquid, to a copolymer which dissolves or sufficiently swells (hydrophilic) in an aqueous liquid at a second pH to increase the viscosity, i.e., thicken the liquid. Advantageously, the copolymer thickeners are essentially completely insoluble (form no more than about a 0.5, preferably no more than about a 0.2, more preferably no more than about a 0.1, weight percent solution) in an aqueous liquid having a pH of less than about 3, preferably less than about 4, more preferably less than about 4.5. Alternatively, as the pH of the aqueous liquid is raised to make the liquid neutral or alkaline, the copolymer dissolves or swells extensively in the liquid. Preferably the copolymer is readily dissolved or sufficiently swollen in an aqueous liquid having a pH of about 6.5, more preferably a pH of about 5.5, to cause thickening (column 4, lines 21-46).

Kernstock discloses that the "pH of the thickened, amphoteric surfactant compositions of this invention is suitably any pH at which the copolymer is soluble or

sufficiently swollen to cause thickening without substantially reducing clarity" (column 10, lines 18-24) (emphasis added).

The rejection with regard to claims 1-52

Appellants respectfully emphasize that the combination of Michaels with Kernstock teaches the use of a polymer that is soluble in an aqueous liquid. The claimed subject matter of independent claims 1, 28, 29, 32, 36, 37, 38, 40, 41, 42, 48, 49, 50, 51, and 52, and claims dependent thereon, includes a vinyl polymer that "is insoluble or sparingly soluble in the water phase." While Kernstock teaches making the copolymeric thickeners in water, while they are insoluble at low pH values, a reasonable interpretation appears that during use they are present in a soluble state. To support this interpretation, the Examiner is requested to note that the compositions of Kernstock are solutions that are to remain clear after the copolymeric thickeners are added (see, e.g., column 4, lines 11-16). The Examiner is further directed to column 10, lines 18-24 where Kernstock states: "The pH of the thickened, amphoteric surfactant compositions of this invention is suitably any pH at which the copolymer is soluble or sufficiently swollen to cause thickening without substantially reducing clarity." Hence, the implication is that solutions, as opposed to emulsions, are maintained.

Also, Kernstock only discusses aqueous compositions. See, for example, line 1 of the Abstract; column 1, lines 12-13; column 1, lines 61-62; and column 1, lines 66-67. There is no mention of the use of an oil in the composition. It is submitted that one of skill in the art would not look to a document directed to aqueous compositions for suitable components that can be included in a water-in-oil emulsion.

Furthermore, the operating pH of the compositions of Michaels is 4.0 to 7.0 (column 5, lines 23-25) and the copolymeric thickeners of Kernstock are generally insoluble in an aqueous liquid having a pH of less than about 2 (column 4, lines 21-26). If one were to use

the copolymeric thickeners of Kernstock in the composition of Michaels (pH range = 4 to 7), this would occur at a pH at which the Kernstock copolymers are not generally insoluble.

Accordingly, not only does the combination of Michaels with Kernstock fail to teach or suggest all of the claim limitations, the combination actually teaches away from the claimed invention at least because the combination would seek to use a water soluble polymeric thickener. Furthermore, as discussed below, Michaels specifically teaches that one would not use the materials of the type disclosed in Kernstock because of the potential for inactivation of the anti-infective properties of the compositions of Michaels.

Appellants submit that there is no motivation to combine Michaels with Kernstock. The Examiner cited Michaels for the disclosure of water-in-oil emulsions and Kernstock for the disclosure of vinyl polymeric thickeners. Although both discuss the use of their compositions as shampoos, Michaels discloses both oil-in-water emulsions and water-in-oil emulsions, thereby failing to specifically teach or suggest a water-in-oil emulsion. Furthermore, while the copolymeric thickeners of Kernstock are insoluble in an aqueous liquid at a pH of less than about 2, there is no teaching or suggestion that such polymers could be used in an emulsion (whether it is an oil-in-water or a water-in-oil emulsion).

Furthermore, the Michaels invention is generally directed to an oil-in-water or water-in-oil emulsion containing a unique anti-infective composition comprised of betaine and amine oxide surfactants. Michaels points out that these anti-infective surfactant systems are prone to inactivation of the anti-infective property. See, for example, column 1, line 63 to column 2, line 12. Specifically, Michaels avoids the use of several classes of materials to prevent inactivation of his anti-infective surfactant system. These materials include:

- a. Hydrophobic materials with HLB values of greater than 1 and lower than 25 (column 2, lines 2-5). The oils used in Michaels have HLB values of 1 or less.
- b. Polyethoxylated surfactants such as Brij 78 (column 1, lines 63-66), POE (5)



oleyl ether, and Pluronic F68 (column 10, lines 54-57).

- c. Compounds containing carboxylate, sulfonate, and sulfate groups such as fatty acids (column 4, lines 20-25).

Thus, it is very clear in Michaels that the emulsion aids used must be chosen to prevent inactivation of the anti-infective surfactant system. Therefore, the polymers are chosen from a very narrow class of nonionic, cationic, and amphoteric polymeric emulsion aids that serve to increase viscosity (Michaels, columns 4 and 5). It is very noteworthy that there are no anionic polymers included, and that of the nonionic polymers disclosed in column 4 and column 5, none are polyethoxylated, which are of the type preferred by Appellants. Finally, all polyethoxylated surfactants, Brij 78, POE (5) oleyl ether, and Pluronic F68 inactivated the anti-infective activity in Michaels.

Kernstock, on the other hand, discloses thickeners for aqueous compositions. The thickeners are comprised of carboxylated and polyethoxylated surfactant ester monomers (see the Abstract; column 2, line 30 to column 3, line 15; and column 5, line 51 to column 8, line 5). Because these materials are of the same type as those listed in (b) and (c) above, one skilled in the art would expect that these materials of Kernstock would inactivate the Michaels compositions. Accordingly, Appellants submit that one of skill in the art would not be motivated to combine the teachings of Michaels with those of Kernstock, or have a reasonable expectation of success in making such a combination.

The rejection with regard to claims 66-70.

Claim 66 relates to a water-in-oil emulsion comprising: a vinyl polymer comprising the reaction product of monomers comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate; an oil phase; and a water phase.

Claim 67 relates to a moisturizing composition comprising a water-in-oil

emulsion comprising: a vinyl polymer comprising the reaction product of monomers comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate; an oil phase; and a water phase.

Claim 68 relates to a mammalian tissue antiseptic composition comprising an antimicrobial agent and a water-in-oil emulsion comprising: a vinyl polymer comprising the reaction product of monomers comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate; an oil phase; and a water phase.

Claim 69 relates to a personal care composition comprising a water-in-oil emulsion comprising: a vinyl polymer comprising the reaction product of monomers comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate; an oil phase; and a water phase.

Claim 70 relates to a transdermal drug delivery composition comprising a pharmaceutical agent and a water-in-oil emulsion comprising: a vinyl polymer comprising the reaction product of monomers comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate; an oil phase; and a water phase.

Appellants submit that the water-in-oil emulsion of claims 66-70 comprises a vinyl polymer comprising the reaction product of monomers comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate; an oil phase; and a water phase. The specification teaches that suitable "vinyl polymers are soluble (i.e., form transparent homogenous solutions) or dispersible in the oil phase and tend to be insoluble or sparingly soluble in the water phase" (page 7, lines 20-23). In addition, the specification specifically lists isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate as monomers that can be used to produce a vinyl polymer (e.g., page 9, lines 9 and 16; page 10, line 29 to page 11, line 1).

As stated above, the combination of Michaels with Kernstock teaches the use of a

polymer that is soluble in an aqueous liquid. Thus, not only does the combination of Michaels with Kernstock fail to teach or suggest all of the claim limitations, the combination actually teaches away from the claimed invention.

Furthermore, as stated by the Examiner, Michaels does not teach or suggest vinyl polymers (page 4 of the Final Office Action mailed 11 February 2004). Appellants emphasize that Kernstock fails to specifically teach or suggest the use of isooctyl acrylate or stearyl methacrylate monomers for the production of a vinyl polymer. Accordingly, the combination of Michaels with Kernstock fails to specifically teach or suggest a water-in-oil emulsion comprising such a vinyl polymer or a composition comprising such a water-in-oil emulsion.

Appellants further submit that there is no motivation to combine Michaels with Kernstock, and there is not reasonable expectation of success upon making such a combination, for the reasons stated above.

For at least all the above stated reasons, it is respectfully submitted that the Examiner has failed to bear the initial burden of factually supporting any *prima facie* conclusion of obviousness. Accordingly, reconsideration and withdrawal of the rejections of the claims is respectfully requested.

**B. Claims 46-47 are patentable under 35 U.S.C. § 103(a) over Michaels (U.S. Patent No. 5,389,676) in view of Kernstock (U.S. Patent No. 4,552,685) as applied to claims 1-45, 48-52, and 66-70 above, and further in view of Omura et al. (U.S. Patent Publication No. US 2003/0064046 A1) (Omura herein) under 35 U.S.C. § 103(a)**

Claims 46-47 stand rejected under 35 U.S.C. § 103(a) over Michaels (U.S. Patent No. 5,389,676) in view of Kernstock (U.S. Patent No. 4,552,685) as applied to claims 1-45, 48-52, and 66-70 above, and further in view of Omura (U.S. Patent Publication No. US 2003/0064046 A1). Appellants respectfully disagree with this rejection and request review and reversal by the Board.

Omura was cited by the Examiner for the disclosure of cosmetic water-in-oil emulsions (page 6 of Final Office Action mailed 11 February 2004). Omura discloses that using both an "emulsifying agent, in particular, a cross-linkable polyether-modified silicone, and a specific component to improve usability so as to form a water-in-oil type emulsion cosmetic composition, it is possible to stably emulsify a broad range of oil components from polar oils to nonpolar oils such as triglyceride, ester oils, and hydrocarbon oils and form a high internal aqueous phase water-in-oil type emulsion cosmetic composition" (page 2, section [0022]). Omura teaches that "the oil phase component formulated into the high internal aqueous phase water-in-oil type emulsion cosmetic composition of the present invention, it is possible to use any oil agent usually formulated into a water-in-oil type (W/O) type emulsion cosmetic composition, that is, oil phase component, without particular restriction" (page 4, section [0040]) (emphasis added). In addition, the "water or other aqueous phase component formulated together with the oil phase components in the high internal aqueous phase water-in-oil type emulsion cosmetic composition of the present invention, that is, the 'W', is water, ethanol, a thickening agent, or other water-soluble compound. The water-soluble polymer, inorganic salt, and amino acid salt formulated as an agent for improving applicability, or usability are also aqueous phase

components and correspond to the 'W' in the present invention" (page 4, section [0042]) (emphasis added). Thus, Appellants emphasize that Omura teaches water-soluble polymers for use as thickening agents.

Appellants respectfully emphasize that the combination of Michaels, Kernstock and Omura teaches the use of a water-soluble polymer. The claimed subject matter of claims 46 and 47 includes a vinyl polymer that "is insoluble or sparingly soluble in the water phase." In addition, the claimed subject matter of independent claims 1, 28, 29, 32, 36-38, 40-42, and 48-52, and claims dependent thereon, also includes a vinyl polymer that "is insoluble or sparingly soluble in the water phase." Accordingly, not only does the combination of Michaels, Kernstock and Omura fail to teach or suggest all of the claim limitations, the combination actually teaches away from the claimed invention.

Appellants additionally submit that there is no motivation to combine the teachings of Omura with those of Michaels and Kernstock. For example, as stated above, Omura teaches that "it is possible to use any oil agent usually formulated into a water-in-oil type (W/O) type emulsion cosmetic composition, that is, oil phase component, without particular restriction" (page 4, section [0040]) (emphasis added). As discussed above, Michaels' invention is generally directed to an oil-in-water or water-in-oil emulsion containing a unique anti-infective composition comprised of betaine and amine oxide surfactants. Michaels points out that these anti-infective surfactant systems are prone to inactivation of the anti-infective property and avoids the use of several classes of materials to prevent inactivation of the anti-infective surfactant system. Thus, the teachings of Michaels are in direct conflict with the teachings of Omura where any oil agent can be used. Furthermore, the polyether-modified silicones of Omura are polyethoxylated silicones. Michaels specifically teaches avoiding the use of polyethoxylated compounds in his water-in-oil emulsions to avoid inactivating the anti-infective activity.

In addition, the combination of any oil phase component as taught by Omura with an anti-infective composition taught by Michaels would be likely to inactivate many of the anti-infective compositions of Michaels, thereby providing little expectation of success.

For at least all these reasons, it is respectfully submitted that the Examiner has failed to bear the initial burden of factually supporting any *prima facie* conclusion of obviousness. Accordingly, reconsideration and withdrawal of the rejections of the claims is respectfully requested.

**Appellants' Brief on Appeal**

**Page 15 of 15**

Serial No.: 09/966,511

Confirmation No.: 4740

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

**C. Summary**

For the foregoing reasons, Appellants respectfully request that the Board review and reverse the rejections of claims 1-52 and 66-70 as discussed herein and that notification of the allowance of these claims be issued.

Respectfully submitted,

Deral T. MOSBEY et al.,

By  
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**CERTIFICATE UNDER 37 CFR §1.10:**

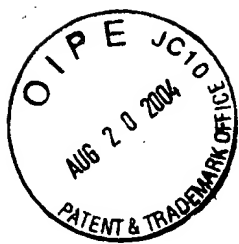
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Date of Deposit: **AUGUST 20, 2004**

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By: Sandy Truehart

Name: Sandy Truehart



## APPENDIX I.

Serial No.: 09/966,511

Docket No.: 55837US002

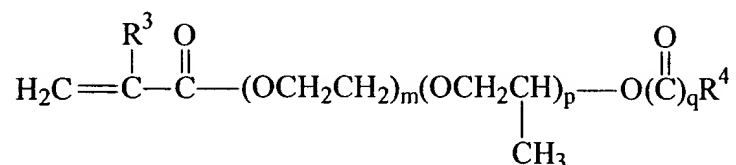
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Claims 1-52 and 66-70 are provided below.

1. A water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkyl-Y-containing side chains, wherein Y is O or NR, wherein R is H or CH<sub>3</sub>, and wherein the alkyl group of the alkyl-Y-containing side chain has at least 4 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.
2. The water-in-oil emulsion of claim 1 wherein the vinyl polymer is soluble in the oil phase.
3. The water-in-oil emulsion of claim 1 wherein the ethylene oxide groups and alkyl-Y groups are in different side chains.
4. The water-in-oil emulsion of claim 1 which is stable.
5. The water-in-oil emulsion of claim 1 which is substantive.
6. The water-in-oil emulsion of claim 5 which provides a reduction in skin capacitance of greater than about 15% compared to an untreated portion of the skin.
7. The water-in-oil emulsion of claim 1 wherein the ethylene oxide-containing side chains further include isopropylene oxide groups.



8. The water-in-oil emulsion of claim 1 wherein the ethylene oxide-containing side chains include at least four ethylene oxide groups.
9. The water-in-oil emulsion of claim 1 wherein the oil phase comprises one or more oils present in a total amount of at least about 20 wt-%, based on the total weight of the emulsion.
10. The water-in-oil emulsion of claim 1 wherein the ethylene oxide-containing side chains are derived from one or more monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomers.
11. The water-in-oil emulsion of claim 10 wherein the monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomers have the formula:



wherein:

m is at least 2;

p is 0 to 50;

q is 0 or 1;

R<sup>3</sup> is H or CH<sub>3</sub>; and

R<sup>4</sup> is hydrogen or linear or branched alkyl and/or aryl groups;

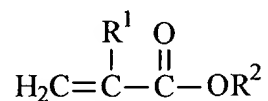
with the proviso that the isopropylene oxide groups (the “p” groups) and the

ethylene oxide groups (the “m” groups) are arranged in a reversed, alternating, random, or block configuration.

12. The water-in-oil emulsion of claim 1 wherein the alkyl-Y-containing side chains are derived from one or more monoethylenically unsaturated alkyl (meth)acrylic monomers.

13. The water-in-oil emulsion of claim 12 wherein the monoethylenically unsaturated alkyl (meth)acrylic monomers are selected from the group consisting of (meth)acrylate monomers, (meth)acrylamide monomers, and combinations thereof.

14. The water-in-oil emulsion of claim 12 wherein the monoethylenically unsaturated alkyl (meth)acrylic monomers are alkyl (meth)acrylate monomers having the formula:



wherein:

R<sup>1</sup> is H or CH<sub>3</sub>; and

R<sup>2</sup> is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms.

15. The water-in-oil emulsion of claim 1 further comprising a stabilizer.

16. The water-in-oil emulsion of claim 1 wherein the vinyl polymer

is the reaction product of: about 60 wt-% to about 90 wt-% of at least one monoethylenically unsaturated alkyl (meth)acrylic monomer; and about 10 wt-% to about 40 wt-% of at least one monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomer.

17. The water-in-oil emulsion of claim 1 which has compatibility with at least one bioactive agent.

18. The water-in-oil emulsion of claim 17 wherein the bioactive agent is an antimicrobial.

19. The water-in-oil emulsion of claim 18 wherein the antimicrobial is chlorhexidine gluconate.

20. The water-in-oil emulsion of claim 18 wherein the antimicrobial is an iodophor.

21. The water-in-oil emulsion of claim 20 wherein the iodophor is povidone-iodine.

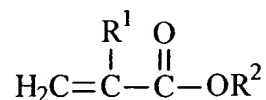
22. The water-in-oil emulsion of claim 1 wherein a pressure sensitive adhesive tape applied over the emulsion on skin adheres at a level of at least about 50% of the level of adhesion of the pressure sensitive adhesive tape applied directly to the skin.

23. The water-in-oil emulsion of claim 1 wherein the vinyl polymer has a calculated HLB of more than about 1 and less than about 10.

24. The water-in-oil emulsion of claim 1 comprising at least about 0.25 wt-% of the vinyl polymer, based on the total weight of the emulsion.
25. The water-in-oil emulsion of claim 1 comprising no more than about 10 wt-% of the vinyl polymer, based on the total weight of the emulsion.
26. The water-in-oil emulsion of claim 1 further comprising a humectant.
27. The water-in-oil emulsion of claim 1 further comprising one or more additives selected from the group consisting of humectants, surfactants, conditioners, sunscreen agents, insect repellents, vitamins, herbal extracts, antiperspirant agents, deodorant agents, skin bleaching agents, skin coloring agents, hair bleaching agents, hair coloring agents, depilating agents, antidandruff agents, antiacne agents, astringents, tensors, skin toning agents, glitter, pigments, dyes, bleaches, perfumes, fragrances, preservatives, antioxidants, waxes, film-forming polymers, propellants, buffers, organic suspending agents, inorganic suspending agents, organic thickening agents, inorganic thickening agents, plasticizers, herbal extracts, flavoring agents, corn removers, callus removers, wart removers, and combinations thereof.
28. A water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkoxy-containing side chains, wherein the alkyl group of the alkoxy-containing side chain has 4 to 50 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.

29. A water-in-oil emulsion comprising: an oil phase; a water phase; and a vinyl polymer that is insoluble or sparingly soluble in the water phase; wherein the vinyl polymer comprises the reaction product of monomers comprising:

about 60 wt-% to about 90 wt-% of at least one monoethylenically unsaturated alkyl (meth)acrylate monomer having the formula:

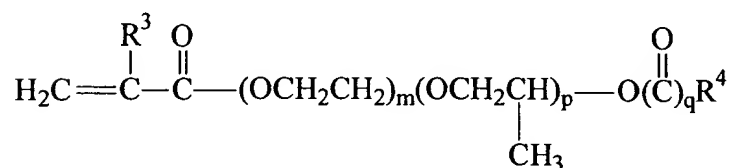


wherein:

R<sup>1</sup> is H or CH<sub>3</sub>; and

R<sup>2</sup> is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms; and

about 10 wt-% to about 40 wt-% of at least one monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomer having the formula:



wherein:

m is at least 2;

p is 0 to 50;

q is 0 or 1;

$R^3$  is H or  $CH_3$ ; and

$R^4$  is hydrogen or linear or branched alkyl and/or aryl groups;

with the proviso that the isopropylene oxide groups (the “p” groups) and the ethylene oxide groups (the “m” groups) are arranged in a reversed, alternating, random, or block configuration;

with the proviso that the vinyl polymer includes no more than about 0.1 wt-% copolymerized acidic monomers.

30. The water-in-oil emulsion of claim 29 which is stable.

31. The water-in-oil emulsion of claim 29 which is substantive.

32. A moisturizing composition comprising a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkyl-Y-containing side chains, wherein Y is O or NR, wherein R is H or  $CH_3$ , and wherein the alkyl group of the alkyl-Y-containing side chain has at least 4 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.

33. The moisturizing composition of claim 32 which is stable.

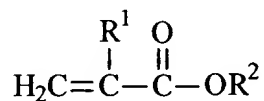
34. The moisturizing composition of claim 32 which is substantive.

35. The moisturizing composition of claim 32 wherein a pressure sensitive adhesive tape applied over the emulsion on skin adheres at a level of at least about 50% of the level of adhesion of the pressure sensitive adhesive tape applied directly to the skin.

36. A moisturizing composition comprising a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkoxy-containing side chains, wherein the alkyl group of the alkoxy-containing side chain has 4 to 50 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.

37. A moisturizing composition comprising a water-in oil emulsion comprising: an oil phase; a water phase; and a vinyl polymer that is insoluble or sparingly soluble in the water phase; wherein the vinyl polymer comprises the reaction product of monomers comprising:

about 60 wt-% to about 90 wt-% of at least one monoethylenically unsaturated alkyl (meth)acrylate monomer having the formula:

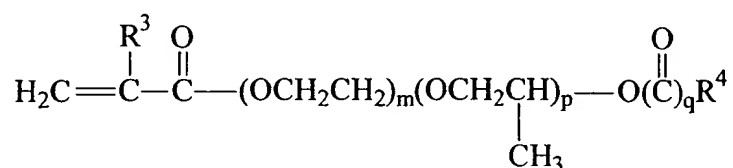


wherein:

R<sup>1</sup> is H or CH<sub>3</sub>; and

R<sup>2</sup> is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms; and

about 10 wt-% to about 40 wt-% of at least one monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomer having the formula:



wherein:

m is at least 2;

p is 0 to 50;

q is 0 or 1;

R<sup>3</sup> is H or CH<sub>3</sub>; and

R<sup>4</sup> is hydrogen or linear or branched alkyl and/or aryl groups;

with the proviso that the isopropylene oxide groups (the “p” groups) and the ethylene oxide groups (the “m” groups) are arranged in a reversed, alternating, random, or block configuration.

38. A mammalian tissue antiseptic composition comprising an antimicrobial agent and a water-in-oil emulsion comprising:

vinyl polymer comprising ethylene oxide-containing side chains and alkyl-Y-containing side chains, wherein Y is O or NR, wherein R is H or CH<sub>3</sub>, and wherein the alkyl group of the alkyl-Y-containing side chain has at least 4 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more



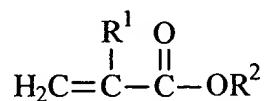
heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.

39. The tissue antiseptic composition of claim 38 which is stable.

40. A mammalian tissue antiseptic composition comprising an antimicrobial agent and a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide containing side chains and alkoxy-containing side chains, wherein the alkyl group of the alkoxy-containing side chain has 4 to 50 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.

41. A mammalian tissue antiseptic composition comprising: an oil phase; a water phase; an antimicrobial agent; and a vinyl polymer that is insoluble or sparingly soluble in the water phase; wherein the vinyl polymer comprises the reaction product of monomers comprising:

about 60 wt-% to about 90 wt-% of at least one monoethylenically unsaturated alkyl (meth)acrylate monomer having the formula:

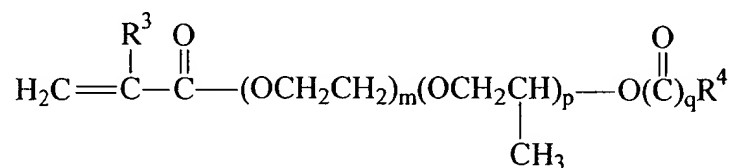


wherein:

R<sup>1</sup> is H or CH<sub>3</sub>; and

$R^2$  is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms; and

about 10 wt-% to about 40 wt-% of at least one monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomer having the formula:



wherein:

$m$  is at least 2;

$p$  is 0 to 50;

$q$  is 0 or 1;

$R^3$  is H or  $\text{CH}_3$ ; and

$R^4$  is hydrogen or linear or branched alkyl and/or aryl groups;

with the proviso that the isopropylene oxide groups (the “ $p$ ” groups) and the ethylene oxide groups (the “ $m$ ” groups) are arranged in a reversed, alternating, random, or block configuration.

42. A personal care composition comprising a water in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide containing side chains and alkyl-Y-containing side chains, wherein Y is O or NR, wherein R is H or  $\text{CH}_3$ , and wherein the alkyl group of the alkyl-Y-containing side chain has at least 4 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or

sparingly soluble in the water phase.

43. The personal care composition of claim 42 which is a hair care composition.

44. The personal care composition of claim 43 wherein the haircare composition is a styling agent, shampoo, dye, conditioner, rinse, antidandruff preparation, or mask for the hair.

45. The personal care composition of claim 42 which is in the form of an insect repellant, shaving product, hand lotion, body lotion, gel, cream, sunless tanning composition, sunscreen, cleanser, toner, astringent, freshener, mask for skin, nail polish, nail strengthener, underarm deodorant, antiperspirant, bath powder, talc, bath oil, bubble bath, makeup, cologne, perfume, composition for cushioning sores, or hair removal composition.

46. The personal care composition of claim 42 which is a makeup.

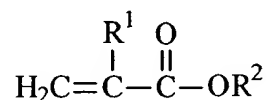
47. The personal care composition of claim 46 wherein the makeup is a lipstick, eye shadow, eye liner, mascara, rouge, face powder, or foundation.

48. A personal care composition comprising a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkoxy-containing side chains, wherein the alkyl group of the alkoxy-containing side chain has 4 to 50 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and

optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.

49. A personal care composition comprising a water in-oil emulsion comprising: an oil phase; a water phase; and a vinyl polymer that is insoluble or sparingly soluble in the water phase; wherein the vinyl polymer comprises the reaction product of monomers comprising:

about 60 wt-% to about 90 wt-% of at least one monoethylenically unsaturated alkyl (meth)acrylate monomer having the formula:

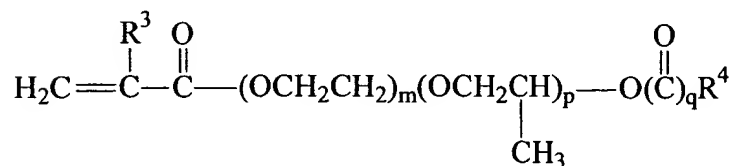


wherein:

$\text{R}^1$  is H or  $\text{CH}_3$ ; and

$\text{R}^2$  is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms; and

about 10 wt-% to about 40 wt-% of at least one monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomer having the formula:



wherein:

$m$  is at least 2;

p is 0 to 50;

q is 0 or 1;

R<sup>3</sup> is H or CH<sub>3</sub>; and

R<sup>4</sup> is hydrogen or linear or branched alkyl and/or aryl groups;

with the proviso that the isopropylene oxide groups (the “p” groups) and the ethylene oxide groups (the “m” groups) are arranged in a reversed, alternating, random, or block configuration.

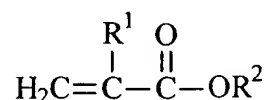
50. A transdermal drug delivery composition comprising a pharmaceutical agent and a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkyl Y-containing side chains, wherein Y is O or NR, wherein R is H or CH<sub>3</sub>, and wherein the alkyl group of the alkyl-Y-containing side chain has at least 4 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.

51. A transdermal drug delivery composition comprising a pharmaceutical agent and a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkoxy-containing side chains, wherein the alkyl group of the alkoxy-containing side chain has 4 to 50 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.

52. A transdermal drug delivery composition comprising a pharmaceutical agent and a

water-in-oil emulsion comprising: an oil phase; a water phase; and a vinyl polymer that is insoluble or sparingly soluble in the water phase; wherein the vinyl polymer comprises the reaction product of monomers comprising:

about 60 wt-% to about 90 wt-% of at least one monoethylenically unsaturated alkyl (meth)acrylate monomer having the formula:

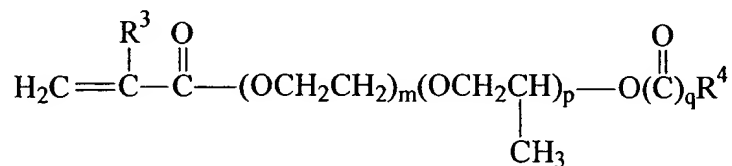


wherein:

$\text{R}^1$  is H or  $\text{CH}_3$ ; and

$\text{R}^2$  is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms; and

about 10 wt-% to about 40 wt-% of at least one monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomer having the formula:



wherein:

$m$  is at least 2;

$p$  is 0 to 50;

$q$  is 0 or 1;

$\text{R}^3$  is H or  $\text{CH}_3$ ; and

$\text{R}^4$  is hydrogen or linear or branched alkyl and/or aryl groups;

with the proviso that the isopropylene oxide groups (the “p” groups) and the ethylene oxide groups (the “m” groups) are arranged in a reversed, alternating, random, or block configuration.

66. A water-in-oil emulsion comprising:
- a vinyl polymer comprising the reaction product of monomers comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate;
  - an oil phase; and
  - a water phase.
67. A moisturizing composition comprising a water-in-oil emulsion comprising:
- a vinyl polymer comprising the reaction product of monomers comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate;
  - an oil phase; and
  - a water phase.
68. A mammalian tissue antiseptic composition comprising an antimicrobial agent and a water-in-oil emulsion comprising:
- a vinyl polymer comprising the reaction product of monomers comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate;
  - an oil phase; and

a water phase.

69. A personal care composition comprising a water-in-oil emulsion comprising:

a vinyl polymer comprising the reaction product of monomers comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate;

an oil phase; and

a water phase.

70. A transdermal drug delivery composition comprising a pharmaceutical agent and a water-in-oil emulsion comprising:

a vinyl polymer comprising the reaction product of monomers comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate;

an oil phase; and

a water phase.



## **APPENDIX II.**

Serial No.: 09/966,511

Docket No.: 55837US002

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1. Michaels (U.S. Patent No. 5,389,676)
2. Kernstock et al. (U.S. Patent No. 4,552,685)
3. Omura et al. (U.S. Patent Publication No. US 2003/0064046 A1)
4. In re Fine, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988).
5. M.P.E.P. § 2142.
6. Amendment filed on 11 May 2004.

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**FULL TEXT OF CASES (USPQ2D)**

All Other Cases

In re Fine (CA FC) 5 USPQ2d 1596 (1/26/1988)

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In re Fine (CA FC) 5 USPQ2d 1596

**In re Fine**

**U.S. Court of Appeals Federal Circuit**  
**5 USPQ2d 1596**

**Decided January 26, 1988**  
**No. 87-1319**

**Headnotes**

**PATENTS**

**1. Patentability/Validity -- Obviousness -- Evidence of (§ 115.0903)**

Patent and Trademark Office improperly rejected claimed invention for obviousness since nothing in cited references, either alone or in combination, suggests or teaches claimed invention, since there is consequently no support for PTO's conclusion that substitution of one type of detector for another in prior art system, resulting in claimed invention, would have been obvious, and since PTO therefore failed to satisfy its burden of establishing prima facie case of obviousness by showing some objective teaching or generally available knowledge that would lead one skilled in art to combine teachings of existing references.

**2. Patentability/Validity -- Obviousness -- In general (§ 115.0901)**

Obviousness is tested by what combined teachings of prior art references would have suggested to those of ordinary skill in art, not by whether particular combination of elements from such references might have been "obvious to try."

**3. Patentability/Validity -- Obviousness -- Evidence of (§ 115.0903)**

Patent and Trademark Office erred, in rejecting as obvious system for detecting and measuring minute quantities of nitrogen compounds, by failing to recognize that appealed claims can be distinguished over combination of prior art references, in view of evidence demonstrating that prior art does not teach

claimed temperature range, despite some overlap of preferred temperature ranges for claimed invention and prior art, since purposes of preferred temperature ranges are different and overlap is mere happenstance.

#### **4. Patentability/Validity -- Obviousness -- In general (§ 115.0901)**

Dependent claims are non-obvious under 35 USC 103 if claims from which they depend are non-obvious.

#### **Case History and Disposition:**

Page 1597

Appeal from the U.S. Patent and Trademark Office Board of Patent Appeals and Interferences.

Application for patent by David H. Fine, Serial No. 512,374. From decision of Board of Patent Appeals and Interferences affirming rejection of application, applicant appeals. Reversed; Smith, circuit judge, dissenting with opinion.

#### **Attorneys:**

Morris Relson and Darby & Darby, New York, N.Y., (Beverly B. Goodwin with them on the brief) for appellant.

Lee E. Barrett, associate solicitor, Arlington, Va., (Joseph F. Nakamura, solicitor, and Fred E. McKelvey, deputy solicitor, with him on the brief) for appellee.

#### **Judge:**

Before Friedman, Smith, and Mayer, circuit judges.

### **Opinion Text**

#### **Opinion By:**

Mayer, J.

David H. Fine appeals from a decision of the Board of Patent Appeals and Interferences of the United States Patent and Trademark Office (Board) affirming the rejection of certain claims of his application, Serial No. 512,374, and concluding that his invention would have been obvious to one of ordinary skill in the art and was therefore unpatentable under 35 U.S.C. §103. We reverse.

### **Background**

#### **A. The Invention .**

The invention claimed is a system for detecting and measuring minute quantities of nitrogen compounds. According to Fine, the system has the ability to detect the presence of nitrogen compounds in quantities as minute as one part in one billion, and is an effective means to detect drugs and explosives, which emanate nitrogen compound vapors even when they are concealed in luggage and

closed containers.

The claimed invention has three major components: (1) a gas chromatograph which separates a gaseous sample into its constituent parts; (2) a converter which converts the nitrogen compound effluent output of the chromatograph into nitric oxide in a hot, oxygen-rich environment; and (3) a detector for measuring the level of nitric oxide. The claimed invention's sensitivity is achieved by combining nitric oxide with ozone to produce nitrogen dioxide which concurrently causes a detectable luminescence.

The luminescence, which is measured by a visual detector, shows the level of nitric oxide which in turn is a measure of nitrogen compounds found in the sample.

The appealed claims were rejected by the Patent and Trademark Office (PTO) under 35 U.S.C. §103. Claims 60, 63, 77 and 80 were rejected as unpatentable over Eads, Patent No. 3,650,696 (Eads) in view of Warnick, et al., Patent No. 3,746,513 (Warnick). Claims 62, 68, 69, 79, 85 and 86 were rejected as unpatentable over Eads and Warnick in view of Glass, et al., Patent No. 3,207,585 (Glass).

## **B. The Prior Art .**

### **1. Eads Patent .**

Eads discloses a method for separating, identifying and quantitatively monitoring sulfur compounds. The Eads system is used primarily in "air pollution control work in the scientific characterization of odors from sulfur compounds."

The problem addressed by Eads is the tendency of sulfur compounds "to adhere to or react with the surface materials of the sampling and analytical equipment, and/or react with the liquid or gaseous materials in the equipment." Because of this, the accuracy

Page 1598

of measurement is impaired. To solve the problem, the Eads system collects an air sample containing sulfur compounds in a sulfur-free methanol solution. The liquid is inserted into a gas chromatograph which separates the various sulfur compounds. The compounds are next sent through a pyrolysis furnace where they are oxidized to form sulfur dioxide. Finally, the sulfur dioxide passes through a measuring device called a microcoulometer which uses titration cells to calculate the concentration of sulfur compounds in the sample.

### **2. Warnick Patent .**

Warnick is directed to a means for detecting the quantity of pollutants in the atmosphere. By measuring the chemiluminescence of the reaction between nitric oxide and ozone, the Warnick device can detect the concentration of nitric oxide in a sample gaseous mixture.

Warnick calls for "continuously flowing" a sample gaseous mixture and a reactant containing ozone into a reaction chamber. The chemiluminescence from the resulting reaction is transmitted through a light-transmitting element to produce continuous readouts of the total amount of nitric oxide present in the sample.

### **3. Glass Patent.**

The invention disclosed in Glass is a device for "completely burning a measured amount of a substance and analyzing the combustion products." A fixed amount of a liquid petroleum sample and oxygen are supplied to a flame. The flame is then spark-ignited, causing the sample to burn. The resulting combustion products are then collected and measured, and from this measurement the hydrogen concentration in the sample is computed.

## **C. The Rejection .**

The Examiner rejected claims 60, 63, 77 and 80 because "substitution of the [nitric oxide] detector of Warnick for the sulfur detector of Eads would be an obvious consideration if interested in nitrogen compounds, and would yield the claimed invention." He further asserted that "Eads teaches the

[claimed] combination of chromatograph, combustion, and detection, in that order. . . . Substitution of detectors to measure any component of interest is well within the skill of the art." In rejecting claims 62, 68, 69, 79, 85 and 86, the Examiner said, "Glass et al. teach a flame conversion means followed by a detector, and substitution of the flame conversion means of Glass et al. for the furnace of Eads would be an obvious equivalent and would yield the claimed invention." The Board affirmed the Examiner's rejection.

### **Discussion**

#### **A. Standard of Review .**

Obviousness under 35 U.S.C. §103 is " 'a legal conclusion based on factual evidence.' " *Stratoflex, Inc. v. Aeroquip Corp.* , 713 F.2d 1530, 1535, 218 USPQ 871, 876 (Fed. Cir. 1983) (quoting *Stevenson v. Int'l Trade Comm'n* , 612 F.2d 546, 549, 204 USPQ 276, 279 (CCPA 1979) ). Therefore, an obviousness determination is not reviewed under the clearly erroneous standard applicable to fact findings, *Raytheon Co. v. Roper Corp.* , 724 F.2d 951, 956, 220 USPQ 592, 596 (Fed. Cir. 1983); it is "reviewed for correctness or error as a matter of law." *In re De Blauwe* , 736 F.2d 699, 703, 222 USPQ 191, 195 (Fed. Cir. 1984).

To reach a proper conclusion under §103, the decisionmaker must step backward in time and into the shoes worn by [a person having ordinary skill in the art] when the invention was unknown and just before it was made. In light of *all* the evidence, the decisionmaker must then determine whether . . . the claimed invention as a whole would have been obvious at *that* time to *that* person. 35 U.S.C. §103. The answer to that question partakes more of the nature of law than of fact, for it is an ultimate conclusion based on a foundation formed of all the probative facts.

*Panduit Corp. v. Dennison Mfg. Co.* , 810 F.2d 1561, 1566, 1 USPQ2d 1593, 1595-96 (Fed. Cir. 1987).

#### **B. Prima Facie Obviousness .**

Fine says the PTO has not established a *prima facie* case of obviousness. He contends the references applied by the Board and Examiner were improperly combined, using hindsight reconstruction, without evidence to support the combination and in the face of contrary teachings in the prior art. He argues that the appealed claims were rejected because the PTO thought it would have been "obvious to try" the claimed invention, an unacceptable basis for rejection.

[1] We agree. The PTO has the burden under section 103 to establish a *prima facie* case of obviousness. See *In re Piasecki* , 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-87 (Fed. Cir. 1984). It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. *In re Lulu* , 747 F.2d 703, 705, 223 USPQ 1257, 1258 (Fed. Cir. 1984); see also *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.* ,

Page 1599

776 F.2d 281, 297 n.24, 227 USPQ 657, 667 n.24 (Fed. Cir. 1985); *ACS Hosp. Sys., Inc. v. Montefiore Hosp.* , 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). This it has not done. The Board points to nothing in the cited references, either alone or in combination, suggesting or teaching Fine's invention.

The primary basis for the Board's affirmance of the Examiner's rejection was that it would have been obvious to substitute the Warnick nitric oxide detector for the Eads sulfur dioxide detector in the Eads system. The Board reiterated the Examiner's bald assertion that "substitution of one type of detector for another in the system of Eads would have been within the skill of the art," but neither of them offered any support for or explanation of this conclusion.

Eads is limited to the analysis of sulfur compounds. The particular problem addressed there is the difficulty of obtaining precise measurements of sulfur compounds because of the tendency of sulfur dioxide to adhere to or react with the sampling analytic equipment or the liquid or gaseous materials in

the equipment. It solves this problem by suggesting that the gaseous sample containing sulfur compounds be absorbed into sulfur-free methanol and then inserted into a gas chromatograph to separate the sulfur compounds.

There is no suggestion in Eads, which focuses on the unique difficulties inherent in the measurement of sulfur, to use that arrangement to detect nitrogen compounds. In fact, Eads says that the presence of nitrogen is undesirable because the concentration of the titration cell components in the sulfur detector is adversely affected by substantial amounts of nitrogen compounds in the sample. So, instead of suggesting that the system be used to detect nitrogen compounds, Eads deliberately seeks to avoid them; it warns against rather than teaches Fine's invention. *See W. L. Gore & Assoc. v. Garlock, Inc.*, 721 F.2d 1540, 1550, 220 USPQ 303, 311 (Fed. Cir. 1983) (error to find obviousness where references "diverge from and teach away from the invention at hand"). In the face of this, one skilled in the art would not be expected to combine a nitrogen-related detector with the Eads system. Accordingly, there is no suggestion to combine Eads and Warnick.

Likewise, the teachings of Warnick are inconsistent with the claimed invention, to some extent. The Warnick claims are directed to a gas stream from engine exhaust "continuously flowing the gaseous mixtures into the reaction chamber" to obtain "continuous readouts" of the amount of nitric oxide in the sample. The other words, it contemplates measuring the total amount of nitric oxide in a continuously flowing gaseous mixture of unseparated nitrogen constituents. By contrast, in Fine each nitrogen compound constituent of the gaseous sample is retained in the Chromatograph for an individual time period so that each exists in discrete, time-separated pulses. \*By this process, each constituent may be both identified by its position in time sequence, and measured. The claimed system, therefore, diverges from Warnick and teaches advantages not appreciated or contemplated by it.

Because neither Warnick nor Eads, alone or in combination, suggests the claimed invention, the Board erred in affirming the Examiner's conclusion that it would have been obvious to substitute the Warnick nitric oxide detector for the Eads sulfur dioxide detector in the Eads system. *ACS Hosp. Sys.*, 732 F.2d at 1575-77, 221 USPQ at 931-33. The Eads and Warnick references disclose, at most, that one skilled in the art might find it obvious to try the claimed invention. But whether a particular combination might be "obvious to try" is not a legitimate test of patentability. *In re Geiger*, 815 F.2d 868, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987); *In re Goodwin*, 576 F.2d 375, 377, 198 USPQ 1, 3 (CCPA 1978).

[2] Obviousness is tested by "what the combined teachings of the references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." *ACS Hosp. Sys.*, 732 F.2d at 1577, 221 USPQ at 933. And "teachings of references can be combined *only* if there is some suggestion or incentive to do so." *Id.* Here, the prior art contains none.

Instead, the Examiner relies on hindsight in reaching his obviousness determination.

Page 1600

But this court has said, "To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." *W. L. Gore*, 721 F.2d at 1553, 220 USPQ at 312-13. It is essential that "the decisionmaker forget what he or she has been taught at trial about the claimed invention and cast the mind back to the time the invention was made . . . to occupy the mind of one skilled in the art who is presented only with the references, and who is normally guided by the then-accepted wisdom in the art." *Id.* One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

### **C. Advantage Not Appreciated by the Prior Art .**

[3] The Board erred not only in improperly combining the Eads and Warnick references but also in

failing to appreciate that the appealed claims can be distinguished over that combination. A material limitation of the claimed system is that the conversion to nitric oxide occur in the range of 600°C to 1700°C. The purpose of this limitation is to prevent nitrogen from other sources, such as the air, from being converted to nitric oxide and thereby distorting the measurement of nitric oxide derived from the nitrogen compounds of the sample.

The claimed nitric oxide conversion temperature is not disclosed in Warnick. Although Eads describes a preferred temperature of 675°C to 725°C, the purpose of this range is different from that of Fine. Eads requires the 675°C to 725°C range because it affords a temperature low enough to avoid formation of unwanted sulfur trioxide, yet high enough to avoid formation of unwanted sulfides. Fine's temperature range, in contrast, does not seek to avoid the formation of sulfur compounds or even nitrogen compounds. It enables the system to break down the nitrogen compounds of the sample while avoiding the destruction of background nitrogen gas. There is a partial overlap, of course, but this is mere happenstance. Because the purposes of the two temperature ranges are entirely unrelated, Eads does not teach use of the claimed range. *See In re Geiger*, 815 F.2d at 688, 2 USPQ2d at 1278. The Board erred by concluding otherwise.

#### **D. Unexpected Results .**

Because we reverse for failure to establish a *prima facie* case of obviousness, we need not reach Fine's contention that the Board failed to accord proper weight to the objective evidence of unexpected superior results. *Id.*

#### **E. The "Flame" Claims .**

[4] Claims 62, 68, 69, 79, 85 and 86 relate to the oxygen-rich flame conversion means of the claimed invention. These "flame" claims depend from either apparatus claim 60 or method claim 77. Dependent claims are nonobvious under section 103 if the independent claims from which they depend are nonobvious. *Hartness Int'l, Inc. v. Simplimatic Eng'g Co.*, 819 F.2d 1100, 1108, 2 USPQ2d 1826, 1831 (Fed. Cir. 1987); *In re Abele*, 684 F.2d 902, 910, 214 USPQ 682, 689 (CCPA 1982); *see also In re Sernaker*, 702 F.2d 989, 991, 217 USPQ 1, 3 (Fed. Cir. 1983). In view of our conclusion that claims 60 and 77 are nonobvious, the dependent "flame" claims are also patentable.

#### **Conclusion**

The Board's decision affirming the Examiner's rejection of claims 60, 62, 63, 68, 69, 77, 79, 80, 85 and 86 of Fine's application as unpatentable over the prior art under 35 U.S.C. §103 is **REVERSED**.

#### **Footnotes**

Footnote \*. The Solicitor argues that the contents of Attachment C of Fine's brief were not before the Board and may not properly be considered here. However, we need not rely on Attachment C. It is merely illustrative of the qualitative separation of nitrogen compounds which occurs in Fine's system. The fact that the various constituents exit at discrete intervals is shown by the specification which was before the Board and which may appropriately be considered on appeal. *See, e.g., Astra-Sjuco, A.B. v. United States Int'l Trade Comm'n*, 629 F.2d 682, 686, 207 USPQ 1, 5 (CCPA 1980) (claims must be construed in light of specification).

#### **Dissenting Opinion Text**

##### **Dissent By:**

Smith, circuit judge, dissenting.

I respectfully dissent. I am of the firm belief that the prior art references, relied upon by the PTO to establish its *prima facie* case of obviousness, in combination teach and suggest Fine's invention to one

skilled in the art. Also, I firmly believe that Fine failed to rebut the PTO's prima facie case. On this basis, I would affirm the board's determination sustaining the examiner's rejection, pursuant to 35 U.S.C. §103, of Fine's claims on appeal before this court.

**- End of Case -**

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## ASCERTAINING LEVEL OF ORDINARY SKILL IS NECESSARY TO MAINTAIN OBJECTIVITY

"The importance of resolving the level of ordinary skill in the art lies in the necessity of maintaining objectivity in the obviousness inquiry." *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718, 21 USPQ2d 1053, 1057 (Fed. Cir. 1991). The examiner must ascertain what would have been obvious to one of ordinary skill in the art at the time the invention was made, and not to the inventor, a judge, a layman, those skilled in remote arts, or to geniuses in the art at hand. *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 218 USPQ 865 (Fed. Cir. 1983), *cert. denied*, 464 U.S. 1043 (1984).

## 2142 Legal Concept of *Prima Facie* Obviousness

The legal concept of *prima facie* obviousness is a procedural tool of examination which applies broadly to all arts. It allocates who has the burden of going forward with production of evidence in each step of the examination process. See *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *In re Linter*, 458 F.2d 1013, 173 USPQ 560 (CCPA 1972); *In re Saunders*, 444 F.2d 599, 170 USPQ 213 (CCPA 1971); *In re Tiffin*, 443 F.2d 394, 170 USPQ 88 (CCPA 1971), *amended*, 448 F.2d 791, 171 USPQ 294 (CCPA 1971); *In re Warner*, 379 F.2d 1011, 154 USPQ 173 (CCPA 1967), *cert. denied*, 389 U.S. 1057 (1968). The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness. If, however, the examiner does produce a *prima facie* case, the burden of coming forward with evidence or arguments shifts to the applicant who may submit additional evidence of nonobviousness, such as comparative test data showing that the claimed invention possesses improved properties not expected by the prior art. The initial evaluation of *prima facie* obviousness thus relieves both the examiner and applicant from evaluating evidence beyond the prior art and the evidence in the specification as filed until the art has been shown to suggest the claimed invention.

To reach a proper determination under 35 U.S.C. 103, the examiner must step backward in time and

into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

## ESTABLISHING A *PRIMA FACIE* CASE OF OBVIOUSNESS

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria.

The initial burden is on the examiner to provide some suggestion of the desirability of doing what the inventor has done. "To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). See MPEP § 2144 -

§ 2144.09 for examples of reasoning supporting obviousness rejections.

When the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the examiner to explain why the combination of the teachings is proper. *Ex parte Skinner*, 2 USPQ2d 1788 (Bd. Pat. App. & Inter. 1986). A statement of a rejection that includes a large number of rejections must explain with reasonable specificity at least one rejection, otherwise the examiner procedurally fails to establish a *prima facie* case of obviousness. *Ex parte Blanc*, 13 USPQ2d 1383 (Bd. Pat. App. & Inter. 1989) (Rejection based on nine references which included at least 40 prior art rejections without explaining any one rejection with reasonable specificity was reversed as procedurally failing to establish a *prima facie* case of obviousness.).

If the examiner determines there is factual support for rejecting the claimed invention under 35 U.S.C. 103, the examiner must then consider any evidence supporting the patentability of the claimed invention, such as any evidence in the specification or any other evidence submitted by the applicant. The ultimate determination of patentability is based on the entire record, by a preponderance of evidence, with due consideration to the persuasiveness of any arguments and any secondary evidence. *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). The legal standard of "a preponderance of evidence" requires the evidence to be more convincing than the evidence which is offered in opposition to it. With regard to rejections under 35 U.S.C. 103, the examiner must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not.

When an applicant submits evidence, whether in the specification as originally filed or in reply to a rejection, the examiner must reconsider the patentability of the claimed invention. The decision on patentability must be made based upon consideration of all the evidence, including the evidence submitted by the examiner and the evidence submitted by the applicant. A decision to make or maintain a rejection in the face of all the evidence must show that it was based on the totality of the evidence. Facts established by rebuttal evidence must be evaluated along with the facts on which the conclusion of obviousness was

reached, not against the conclusion itself. *In re Eli Lilly & Co.*, 902 F.2d 943, 14 USPQ2d 1741 (Fed. Cir. 1990).

See *In re Piasecki*, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984) for a discussion of the proper roles of the examiner's *prima facie* case and applicant's rebuttal evidence in the final determination of obviousness. See MPEP § 706.02(j) for a discussion of the proper contents of a rejection under 35 U.S.C. 103.

## 2143 Basic Requirements of a *Prima Facie* Case of Obviousness

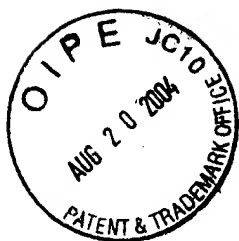
To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

### 2143.01 Suggestion or Motivation To Modify the References [R-2]

#### THE PRIOR ART MUST SUGGEST THE DESIRABILITY OF THE CLAIMED INVENTION

"There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper.). The level of skill in the art cannot be relied upon to provide the suggestion to combine references. *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999).



**OFFICIAL**  
Expedited Examining Procedure  
Group 1617

PATENT  
Docket No. 55837US002

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant(s): Deral T. MOSBEY et al.	)	Group Art Unit:	1617
	)		
Serial No.: 09/966,511	)	Examiner:	Gina C. Yu
Confirmation No.: 4740	)		
	)		
Filed: 28 September 2001	)		
	)		
For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS			

**AMENDMENT AND RESPONSE UNDER 37 CFR §1.116**

Commissioner for Patents  
**Mail Stop AF**  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

In response to the Final Office Action mailed 11 February 2004, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on the page entitled "Amendments to the Claims."

Remarks begin on the page entitled "Remarks."

**Amendments to the Claims**

This listing of claims replaces all prior versions, and listings, of claims in the above-identified application:

1. (Previously Presented) A water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkyl-Y-containing side chains, wherein Y is O or NR, wherein R is H or CH<sub>3</sub>, and wherein the alkyl group of the alkyl-Y-containing side chain has at least 4 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.
2. (Original) The water-in-oil emulsion of claim 1 wherein the vinyl polymer is soluble in the oil phase.
3. (Original) The water-in-oil emulsion of claim 1 wherein the ethylene oxide groups and alkyl-Y groups are in different side chains.
4. (Original) The water-in-oil emulsion of claim 1 which is stable.
5. (Original) The water-in-oil emulsion of claim 1 which is substantive.
6. (Previously Presented) The water-in-oil emulsion of claim 5 which provides a reduction in skin capacitance of greater than about 15% compared to an untreated portion of the skin.

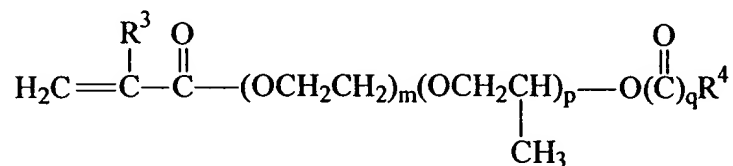
Serial No.: 09/966,511

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Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

7. (Original) The water-in-oil emulsion of claim 1 wherein the ethylene oxide-containing side chains further include isopropylene oxide groups.
8. (Original) The water-in-oil emulsion of claim 1 wherein the ethylene oxide-containing side chains include at least four ethylene oxide groups.
9. (Original) The water-in-oil emulsion of claim 1 wherein the oil phase comprises one or more oils present in a total amount of at least about 20 wt-%, based on the total weight of the emulsion.
10. (Original) The water-in-oil emulsion of claim 1 wherein the ethylene oxide-containing side chains are derived from one or more monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomers.
11. (Original) The water-in-oil emulsion of claim 10 wherein the monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomers have the formula:



wherein:

m is at least 2;

p is 0 to 50;

q is 0 or 1;

R<sup>3</sup> is H or CH<sub>3</sub>; and

R<sup>4</sup> is hydrogen or linear or branched alkyl and/or aryl groups;

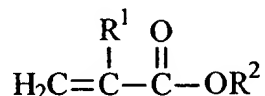
with the proviso that the isopropylene oxide groups (the "p" groups) and

the ethylene oxide groups (the “m” groups) are arranged in a reversed, alternating, random, or block configuration.

12. (Original) The water-in-oil emulsion of claim 1 wherein the alkyl-Y-containing side chains are derived from one or more monoethylenically unsaturated alkyl (meth)acrylic monomers.

13. (Original) The water-in-oil emulsion of claim 12 wherein the monoethylenically unsaturated alkyl (meth)acrylic monomers are selected from the group consisting of (meth)acrylate monomers, (meth)acrylamide monomers, and combinations thereof.

14. (Original) The water-in-oil emulsion of claim 12 wherein the monoethylenically unsaturated alkyl (meth)acrylic monomers are alkyl (meth)acrylate monomers having the formula:



wherein:

R<sup>1</sup> is H or CH<sub>3</sub>; and

R<sup>2</sup> is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms.

15. (Original) The water-in-oil emulsion of claim 1 further comprising a stabilizer.

16. (Original) The water-in-oil emulsion of claim 1 wherein the vinyl polymer is the reaction product of: about 60 wt-% to about 90 wt-% of at least one monoethylenically unsaturated alkyl (meth)acrylic monomer; and about 10 wt-% to about 40 wt-% of at least

one monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomer.

17. (Original) The water-in-oil emulsion of claim 1 which has compatibility with at least one bioactive agent.

18. (Original) The water-in-oil emulsion of claim 17 wherein the bioactive agent is an antimicrobial.

19. (Original) The water-in-oil emulsion of claim 18 wherein the antimicrobial is chlorhexidine gluconate.

20. (Original) The water-in-oil emulsion of claim 18 wherein the antimicrobial is an iodophor.

21. (Original) The water-in-oil emulsion of claim 20 wherein the iodophor is povidone-iodine.

22. (Original) The water-in-oil emulsion of claim 1 wherein a pressure sensitive adhesive tape applied over the emulsion on skin adheres at a level of at least about 50% of the level of adhesion of the pressure sensitive adhesive tape applied directly to the skin.

23. (Original) The water-in-oil emulsion of claim 1 wherein the vinyl polymer has a calculated HLB of more than about 1 and less than about 10.

24. (Original) The water-in-oil emulsion of claim 1 comprising at least about 0.25 wt-% of the vinyl polymer, based on the total weight of the emulsion.

25. (Original) The water-in-oil emulsion of claim 1 comprising no more than about 10 wt-% of the vinyl polymer, based on the total weight of the emulsion.

26. (Original) The water-in-oil emulsion of claim 1 further comprising a humectant.

27. (Previously Presented) The water-in-oil emulsion of claim 1 further comprising one or more additives selected from the group consisting of humectants, surfactants, conditioners, sunscreen agents, insect repellents, vitamins, herbal extracts, antiperspirant agents, deodorant agents, skin bleaching agents, skin coloring agents, hair bleaching agents, hair coloring agents, depilating agents, antidandruff agents, antiacne agents, astringents, tensors, skin toning agents, glitter, pigments, dyes, bleaches, perfumes, fragrances, preservatives, antioxidants, waxes, film-forming polymers, propellants, buffers, organic suspending agents, inorganic suspending agents, organic thickening agents, inorganic thickening agents, plasticizers, herbal extracts, flavoring agents, corn removers, callus removers, wart removers, and combinations thereof.

28. (Previously Presented) A water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkoxy-containing side chains, wherein the alkyl group of the alkoxy-containing side chain has 4 to 50 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.

29. (Previously Presented) A water-in-oil emulsion comprising: an oil phase; a water phase; and a vinyl polymer that is insoluble or sparingly soluble in the water phase; wherein the vinyl polymer comprises the reaction product of monomers comprising:



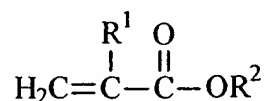
Serial No.: 09/966,511

Confirmation No.: 4740

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

about 60 wt-% to about 90 wt-% of at least one monoethylenically unsaturated alkyl (meth)acrylate monomer having the formula:

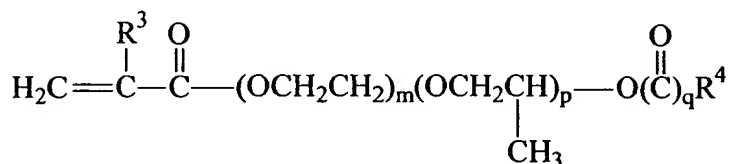


wherein:

R<sup>1</sup> is H or CH<sub>3</sub>; and

R<sup>2</sup> is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms; and

about 10 wt-% to about 40 wt-% of at least one monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomer having the formula:



wherein:

m is at least 2;

p is 0 to 50;

q is 0 or 1;

R<sup>3</sup> is H or CH<sub>3</sub>; and

R<sup>4</sup> is hydrogen or linear or branched alkyl and/or aryl groups;

with the proviso that the isopropylene oxide groups (the “p” groups) and the ethylene oxide groups (the “m” groups) are arranged in a reversed, alternating, random, or block configuration;

with the proviso that the vinyl polymer includes no more than about 0.1 wt-% copolymerized acidic monomers.

30. (Original) The water-in-oil emulsion of claim 29 which is stable.
31. (Original) The water-in-oil emulsion of claim 29 which is substantive.
32. (Previously Presented) A moisturizing composition comprising a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkyl-Y-containing side chains, wherein Y is O or NR, wherein R is H or CH<sub>3</sub>, and wherein the alkyl group of the alkyl-Y-containing side chain has at least 4 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.
33. (Original) The moisturizing composition of claim 32 which is stable.
34. (Original) The moisturizing composition of claim 32 which is substantive.
35. (Original) The moisturizing composition of claim 32 wherein a pressure sensitive adhesive tape applied over the emulsion on skin adheres at a level of at least about 50% of the level of adhesion of the pressure sensitive adhesive tape applied directly to the skin.
36. (Previously Presented) A moisturizing composition comprising a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkoxy-containing side chains, wherein the alkyl group of the alkoxy-containing side

Serial No.: 09/966,511

Confirmation No.: 4740

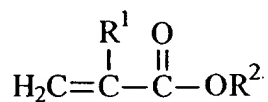
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For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

chain has 4 to 50 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.

37. (Previously Presented) A moisturizing composition comprising a water-in-oil emulsion comprising: an oil phase; a water phase; and a vinyl polymer that is insoluble or sparingly soluble in the water phase; wherein the vinyl polymer comprises the reaction product of monomers comprising:

about 60 wt-% to about 90 wt-% of at least one monoethylenically unsaturated alkyl (meth)acrylate monomer having the formula:

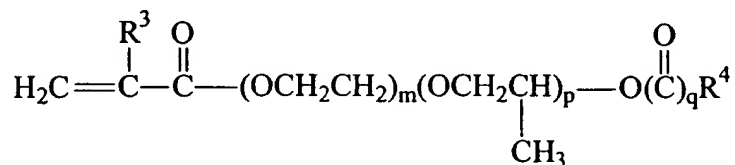


wherein:

R<sup>1</sup> is H or CH<sub>3</sub>; and

R<sup>2</sup> is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms; and

about 10 wt-% to about 40 wt-% of at least one monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomer having the formula:



wherein:

m is at least 2;

p is 0 to 50;

q is 0 or 1;

R<sup>3</sup> is H or CH<sub>3</sub>; and

R<sup>4</sup> is hydrogen or linear or branched alkyl and/or aryl groups;

with the proviso that the isopropylene oxide groups (the “p” groups) and the ethylene oxide groups (the “m” groups) are arranged in a reversed, alternating, random, or block configuration.

38. (Previously Presented) A mammalian tissue antiseptic composition comprising an antimicrobial agent and a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkyl-Y-containing side chains, wherein Y is O or NR, wherein R is H or CH<sub>3</sub>, and wherein the alkyl group of the alkyl-Y-containing side chain has at least 4 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.

39. (Original) The tissue antiseptic composition of claim 38 which is stable.

40. (Previously Presented) A mammalian tissue antiseptic composition comprising an antimicrobial agent and a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkoxy-containing side chains, wherein the alkyl group of the alkoxy-containing side chain has 4 to 50 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.

Serial No.: 09/966,511

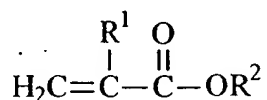
Confirmation No.: 4740

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For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

41. (Previously Presented) A mammalian tissue antiseptic composition comprising: an oil phase; a water phase; an antimicrobial agent; and a vinyl polymer that is insoluble or sparingly soluble in the water phase; wherein the vinyl polymer comprises the reaction product of monomers comprising:

about 60 wt-% to about 90 wt-% of at least one monoethylenically unsaturated alkyl (meth)acrylate monomer having the formula:

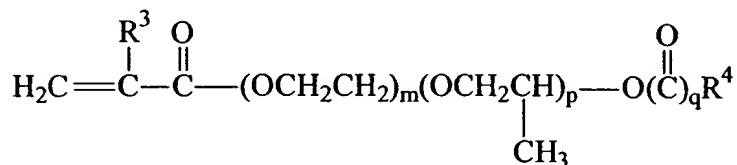


wherein:

$\text{R}^1$  is H or  $\text{CH}_3$ ; and

$\text{R}^2$  is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms; and

about 10 wt-% to about 40 wt-% of at least one monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomer having the formula:



wherein:

$m$  is at least 2;

$p$  is 0 to 50;

$q$  is 0 or 1;

$\text{R}^3$  is H or  $\text{CH}_3$ ; and

$\text{R}^4$  is hydrogen or linear or branched alkyl and/or aryl groups;

with the proviso that the isopropylene oxide groups (the “p” groups) and the ethylene oxide groups (the “m” groups) are arranged in a reversed, alternating, random, or block configuration.

42. (Previously Presented) A personal care composition comprising a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkyl-Y-containing side chains, wherein Y is O or NR, wherein R is H or CH<sub>3</sub>, and wherein the alkyl group of the alkyl-Y-containing side chain has at least 4 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.

43. (Original) The personal care composition of claim 42 which is a hair care composition.

44. (Original) The personal care composition of claim 43 wherein the hair care composition is a styling agent, shampoo, dye, conditioner, rinse, antidandruff preparation, or mask for the hair.

45. (Original) The personal care composition of claim 42 which is in the form of an insect repellant, shaving product, hand lotion, body lotion, gel, cream, sunless tanning composition, sunscreen, cleanser, toner, astringent, freshener, mask for skin, nail polish, nail strengthener, underarm deodorant, antiperspirant, bath powder, talc, bath oil, bubble bath, makeup, cologne, perfume, composition for cushioning sores, or hair removal composition.

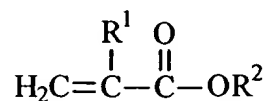
46. (Original) The personal care composition of claim 42 which is a makeup.

47. (Original) The personal care composition of claim 46 wherein the makeup is a lipstick, eye shadow, eye liner, mascara, rouge, face powder, or foundation.

48. (Previously Presented) A personal care composition comprising a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkoxy-containing side chains, wherein the alkyl group of the alkoxy-containing side chain has 4 to 50 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.

49. (Previously Presented) A personal care composition comprising a water-in-oil emulsion comprising: an oil phase; a water phase; and a vinyl polymer that is insoluble or sparingly soluble in the water phase; wherein the vinyl polymer comprises the reaction product of monomers comprising:

about 60 wt-% to about 90 wt-% of at least one monoethylenically unsaturated alkyl (meth)acrylate monomer having the formula:



wherein:

R<sup>1</sup> is H or CH<sub>3</sub>; and

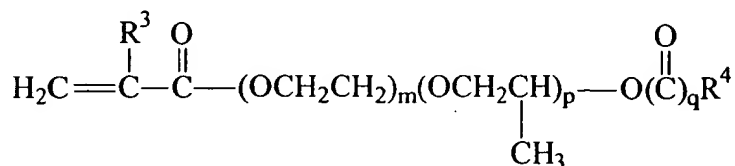
R<sup>2</sup> is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms; and

about 10 wt-% to about 40 wt-% of at least one monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomer having the formula:

Serial No.: 09/966,511

Confirmation No.: 4740

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

wherein:

m is at least 2;

p is 0 to 50;

q is 0 or 1;

R<sup>3</sup> is H or CH<sub>3</sub>; and

R<sup>4</sup> is hydrogen or linear or branched alkyl and/or aryl groups;

with the proviso that the isopropylene oxide groups (the “p” groups) and the ethylene oxide groups (the “m” groups) are arranged in a reversed, alternating, random, or block configuration.

50. (Previously Presented) A transdermal drug delivery composition comprising a pharmaceutical agent and a water-in-oil emulsion comprising: a vinyl polymer comprising ethylene oxide-containing side chains and alkyl Y-containing side chains, wherein Y is O or NR, wherein R is H or CH<sub>3</sub>, and wherein the alkyl group of the alkyl-Y-containing side chain has at least 4 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.

51. (Previously Presented) A transdermal drug delivery composition comprising a pharmaceutical agent and a water-in-oil emulsion comprising:



Serial No.: 09/966,511

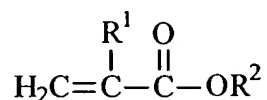
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a vinyl polymer comprising ethylene oxide-containing side chains and alkoxy-containing side chains, wherein the alkyl group of the alkoxy-containing side chain has 4 to 50 carbon atoms on average in a cyclic, branched-, or straight-chain configuration and optionally includes one or more heteroatoms; an oil phase; and a water phase; wherein the vinyl polymer is insoluble or sparingly soluble in the water phase.

52. (Previously Presented) A transdermal drug delivery composition comprising a pharmaceutical agent and a water-in-oil emulsion comprising: an oil phase; a water phase; and a vinyl polymer that is insoluble or sparingly soluble in the water phase; wherein the vinyl polymer comprises the reaction product of monomers comprising: about 60 wt-% to about 90 wt-% of at least one monoethylenically unsaturated alkyl (meth)acrylate monomer having the formula:

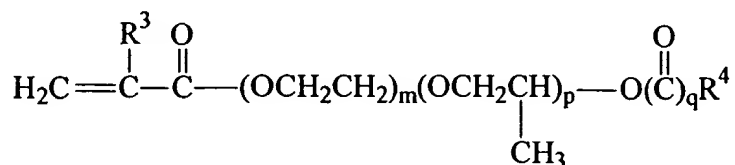


wherein:

$\text{R}^1$  is H or  $\text{CH}_3$ ; and

$\text{R}^2$  is a linear, branched, or cyclic alkyl group optionally including one or more heteroatoms; and

about 10 wt-% to about 40 wt-% of at least one monoethylenically unsaturated poly(alkylene oxide) (meth)acrylic monomer having the formula:



wherein:

m is at least 2;

p is 0 to 50;

q is 0 or 1;

R<sup>3</sup> is H or CH<sub>3</sub>; and

R<sup>4</sup> is hydrogen or linear or branched alkyl and/or aryl groups;

with the proviso that the isopropylene oxide groups (the “p” groups) and the ethylene oxide groups (the “m” groups) are arranged in a reversed, alternating, random, or block configuration.

53. (Withdrawn) A method of moisturizing mammalian skin comprising applying a moisturizing composition of claim 32 to mammalian skin.

54. (Withdrawn) A method of moisturizing mammalian skin comprising applying a moisturizing composition of claim 36 to mammalian skin.

55. (Withdrawn) A method of moisturizing mammalian skin comprising applying a moisturizing composition of claim 37 to mammalian skin.

56. (Withdrawn) A method of disinfecting mammalian tissue comprising applying a tissue antiseptic composition of claim 38 to mammalian tissue.

57. (Withdrawn) A method of disinfecting mammalian tissue comprising applying a tissue antiseptic composition of claim 40 to mammalian tissue.

58. (Withdrawn) A method of disinfecting mammalian tissue comprising applying a tissue antiseptic composition of claim 41 to mammalian tissue.

59. (Withdrawn) A method of delivering a pharmaceutical agent to a mammal comprising applying a transdermal drug delivery composition of claim 50 to mammalian skin.

60. (Withdrawn) A method of delivering a pharmaceutical agent to a mammal comprising applying a transdermal drug delivery composition of claim 51 to mammalian skin.

61. (Withdrawn) A method of delivering a pharmaceutical agent to a mammal comprising applying a transdermal drug delivery composition of claim 52 to mammalian skin.

62. – 65. (Canceled)

66. (Previously Presented) A water-in-oil emulsion comprising:  
a vinyl polymer comprising the reaction product of monomers comprising:  
isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate;  
an oil phase; and  
a water phase.

67. (Previously Presented) A moisturizing composition comprising a water-in-oil emulsion comprising:  
a vinyl polymer comprising the reaction product of monomers comprising:  
isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate;  
an oil phase; and  
a water phase.

68. (Currently Amended) A mammalian tissue antiseptic composition comprising an antimicrobial agent and a water-in-oil emulsion comprising:
- a vinyl polymer comprising the reaction product of monomers comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate;
  - an oil phase; and
  - a water phase; ~~and~~
  - ~~an antimicrobial.~~
69. (Previously Presented) A personal care composition comprising a water-in-oil emulsion comprising:
- a vinyl polymer comprising the reaction product of monomers comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate;
  - an oil phase; and
  - a water phase.
70. (Previously Presented) A transdermal drug delivery composition comprising a pharmaceutical agent and a water-in-oil emulsion comprising:
- a vinyl polymer comprising the reaction product of monomers comprising: isooctyl acrylate, stearyl methacrylate, and polyethylene oxide methacrylate;
  - an oil phase; and
  - a water phase; ~~and~~
  - ~~a pharmaceutical agent.~~
71. (Withdrawn) A water-in-oil emulsion comprising:
- a vinyl polymer comprising the reaction product of monomers comprising:
    - (i) polyethylene oxide methacrylate and (ii) isooctyl acrylate, 2-ethylhexyl acrylate, or

both;

an oil phase; and

a water phase.

72. (Withdrawn) A moisturizing composition comprising a water-in-oil emulsion comprising:

a vinyl polymer comprising the reaction product of monomers comprising:

(i) polyethylene oxide methacrylate and (ii) isooctyl acrylate, 2-ethylhexyl acrylate, or

both;

an oil phase; and

a water phase.

73. (Withdrawn – Previously Presented) A tissue antiseptic composition comprising an antimicrobial agent and a water-in-oil emulsion comprising:

a vinyl polymer comprising the reaction product of monomers comprising:

(i) polyethylene oxide methacrylate and (ii) isooctyl acrylate, 2-ethylhexyl acrylate, or

both;

an oil phase; and

a water phase.

74. (Withdrawn) A personal care composition comprising a water-in-oil emulsion comprising:

a vinyl polymer comprising the reaction product of monomers comprising:

(i) polyethylene oxide methacrylate and (ii) isooctyl acrylate, 2-ethylhexyl acrylate, or

both;

an oil phase; and

a water phase.

Serial No.: 09/966,511

Confirmation No.: 4740

Filed: 28 September 2001

For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

75. (Withdrawn – Previously Presented) A transdermal drug delivery composition comprising a pharmaceutical agent and a water-in-oil emulsion comprising:

a vinyl polymer comprising the reaction product of monomers comprising:

(i) polyethylene oxide methacrylate and (ii) isooctyl acrylate, 2-ethylhexyl acrylate, or both;

an oil phase; and

a water phase.

Serial No.: 09/966,511

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### **Remarks**

The Final Office Action mailed 11 February 2004 has been received and reviewed. The pending claims are claims 1-61 and 66-75. Reconsideration and withdrawal of the rejections are respectfully requested.

### **Interview Summary Record**

Applicants thank the Examiners for the courtesy extended in an interview on 22 March 2004 between Applicants' Representatives, Ann Muetting and Nancy Lambert, Examiner Sreeni Padmanabhan, and Examiner Wells. During the interview, Examiner Wells agreed to withdraw the 112, second paragraph rejection. The art rejections were also discussed.

### **Information Disclosure Statement**

On February 27, 2002, Applicants submitted an Information Disclosure Statement and 1449 forms to the U.S. Patent and Trademark Office. To date, Applicants have not received an initialed copy of the 1449 forms from the Examiner. Applicants respectfully request that the Examiner initial the 1449 forms and provide a copy to Applicants with the next official communication. For the Examiner's convenience, Applicants enclose herewith a courtesy copy of the 1449 forms submitted on February 27, 2002.

### **The 35 U.S.C. §112, Second Paragraph, Rejection**

The Examiner rejected claims 1-52 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Specifically, the Examiner alleged that claims 1, 28, 29, 32, 36, 37, 38, 40, 41, 42, and 48-52 are vague and indefinite because the metes and bounds of the limitation "sparingly soluble" are not ascertainable. In view of the Interview Summary of 22 March 2004, the Examiner indicated that the above rejection will be withdrawn.

Serial No.: 09/966,511

Confirmation No.: 4740

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For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS

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**The 35 U.S.C. §103 Rejection**

The Examiner rejected claims 1-45, 48-52, and 66-70 under 35 U.S.C. §103(a) as being unpatentable over Michaels (U.S. Patent No. 5,389,676) in view of Kernstock et al. (U.S. Patent No. 4,552,685). The Examiner also rejected claims 46-47 under 35 U.S.C. §103(a) as being unpatentable over Michaels (U.S. Patent No. 5,389,676) in view of Kernstock et al. (U.S. Patent No. 4,552,685) as applied to claims 1-45, 48-52, and 66-70 above, and further in view of Omura et al. (US Patent Publication No. 2003/0064046). These rejections are respectfully traversed.

The Examiner cited Michaels for the disclosure of water-in-oil emulsions and Kernstock et al. for the disclosure of vinyl polymeric thickeners; however, there is no motivation to combine these disclosures. Although both discuss the use of their compositions as shampoos, Michaels discloses both oil-in-water emulsions and water-in-oil emulsions. Furthermore, although the copolymeric thickeners of Kernstock et al. are insoluble in an aqueous liquid at a pH of less than about 2, there is no teaching or suggestion that such polymers could be used in an emulsion (whether it is an oil-in-water or a water-in-oil emulsion).

The Michaels invention is generally directed to an oil-in-water or water-in-oil emulsion containing a unique antiinfective composition comprised of betaine and amine oxide surfactants. Michaels points out that these antiinfective surfactant systems are prone to inactivation of the antiinfective property. See, for example, col. 1, line 63 to col. 2, line 12. Specifically, Michaels avoids the use of several classes of materials to prevent inactivation of his antiinfective surfactant system. These materials include:

- a. Hydrophobic materials with HLB values of greater than 1 and lower than 25 (col. 2, lines 2-5). The oils used in Michaels have HLB values of 1 or less.
- b. Polyethoxylated surfactants such as Brij 78 (col. 1, lines 63-66), POE (5) oleyl ether, and Pluronic F68 (col. 10, lines 54-57).
- c. Compounds containing carboxylate, sulfonate, and sulfate groups such as fatty acids (col. 4, lines 20-25).



Thus, it is very clear in Michaels that the emulsion aids used must be chosen to prevent inactivation of the antiinfective surfactant system. Therefore, the polymers are chosen from a very narrow class of nonionic, cationic, and amphoteric polymeric emulsion aids that serve to increase viscosity. It is very noteworthy that there are no anionic polymers included, and that of the nonionic polymers disclosed in col. 4 and col. 5, none are polyethoxylated.

Kernstock et al., on the other hand, discloses thickeners for aqueous compositions. The thickeners are comprised of carboxylated and polyethoxylated monomers (see the Abstract, col. 2, line 30 to col. 3, line 15, and col. 5, line 51 to col. 8, line 5). Therefore, one skilled in the art would expect that these would inactivate the Michaels invention.

Also, Kernstock et al. teach making the copolymeric thickeners in water while they are insoluble at low pH values; however, a reasonable interpretation appears that in use they are present in a soluble state. To support this interpretation, the Examiner is requested to note that the compositions of Kernstock et al. are solutions that are to remain clear after the copolymeric thickeners are added (see, e.g., col. 4, lines 11-16). The Examiner is further directed to col. 10, lines 18-24 where Kernstock et al. state: "The pH of the thickened, amphoteric surfactant compositions of this invention is suitably any pH at which the copolymer is soluble or sufficiently swollen to cause thickening without substantially reducing clarity." Hence, the implication is that solutions, as opposed to emulsions, are maintained.

For at least all these reasons, it is respectfully submitted that there is no motivation to combine Michaels with Kernstock et al. That is, there is no motivation to combine the thickeners of Kernstock et al. with the emulsions of Michaels. In fact, Michaels teaches away from this combination.

Finally, with respect to claims 46 and 47, Omura et al. do not provide that which is missing from Michaels and Kernstock et al. Withdrawal of these rejections is respectfully requested.

Serial No.: 09/966,511

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Summary

It is respectfully submitted that the pending claims 1-61 and 66-75 are in condition for allowance and notification to that effect is respectfully requested. The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted for  
Deral T. MOSBEY et al.

By  
Mueting, Raasch & Gebhardt, P.A.  
P.O. Box 581415  
Minneapolis, MN 55458-1415  
Phone: (612) 305-1220  
Facsimile: (612) 305-1228

May 11, 2004  
Date

By: Ann M. Mueting  
Ann M. Mueting  
Reg. No. 33,977  
Direct Dial (612)305-1217

CERTIFICATE UNDER 37 CFR §1.8:

The undersigned hereby certifies that the Transmittal Letter and the paper(s), as described hereinabove, are being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Commissioner for Patents, **Mail Stop AF**, P.O. Box 1450, Alexandria, VA 22313-1450, on this 11<sup>th</sup> day of May, 2004, at 3:42 p.m. (Central Time).

By: Rachel Gagliardi-Gerson  
Name: Rachel Gagliardi-Gerson

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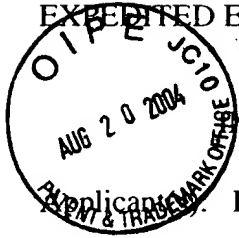
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05/11/2004 13:42 FAX 6123051228		MUTING RAASCH GEBHARDT		0001	
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE					
Applicant(s): Deral T. MOSBEY et al.		Group Art Unit:		1617	
Serial No.: 09/966,511		Examiner:		Gina C. Yu	
Confirmation No.: 4740					
Filed: 28 September 2001					
For:		WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS, COMPOSITIONS, AND METHODS			
FACSIMILE TRANSMISSION TO THE PTO					
Commissioner for Patents		FAX NUMBER: (703) 872-9306			
Attn: Examiner Gina C. Yu		Total Pages (including cover page): 27 pgs.			
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P.O. Box 1450		(Transmission must be complete by midnight eastern time.)			
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Please consider this a PETITION FOR EXTENSION OF TIME for a sufficient number of months to enter these papers and please charge any additional fees or credit overpayment to Deposit Account No. 13-4895.					
May 11, 2004		Muting Raasch & Gebhardt, P.A.			
Date		By: <u>Ann M. Muting</u>			
		Ann M. Muting			
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May 11, 2004		Signature: <u>Rachel Ogilvie-Gibson</u>			
Date		Name: <u>Rachel Ogilvie-Gibson</u>			
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PAGE 1/27 * RCVD AT 5/11/2004 4:43:40 PM [Eastern Daylight Time] * SVR-USPTO-EF705-111 * DMS-278304 * CSID:6123051228 * DURATION (mm:ss):07:04					

EXPEDITED EXAMINING REQUESTED

PATENT  
Docket No. 55837US002



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Deral T. MOSBEY et al. )  
Serial No.: 09/966,511 )  
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Filed: 28 September 2001 )  
For: WATER-IN-OIL EMULSIONS WITH ETHYLENE OXIDE GROUPS,  
COMPOSITIONS, AND METHODS )

Group Art Unit: 1617  
Examiner: Gina C. Yu

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Commissioner for Patents  
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May 11, 2004  
Date

Mueting, Raasch & Gebhardt, P.A.

By: Ann M. Mueting  
Ann M. Mueting  
Reg. No. 33,977  
Direct Dial (612)305-1217

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May 11, 2004  
Date

Signature: Rachel Gagliardi-Grahn  
Name: Rachel Gagliardi-Grahn

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